

- Sub B1
- A1
1. (Amended) An irrigation system comprising:
each of an irrigation controller and a water application device physically situated at a location of a user [user's location], the controller at least partially controlling the water application device;
a distal computer remote from the user location;
a first communication system that exchanges information between the irrigation controller and the distal computer;
a second communication system that exchanges information between the irrigation controller and the user;
a third communication system that exchanges information between the user and the distal computer; [and]
a fourth communication system that exchanges information between the distal computer and a third party[.] ; and
wherein each of the first communication system, the third communication system, and the fourth communication system comprise a public, packet switched network.

- A2
6. (Amended) The irrigation system of claim 1, wherein the second communication system [at least one of the first, third, and fourth communication systems] comprises a public, packet switched network.

- A3
10. (Amended) A method of operating an irrigation system comprising:
physically situating each of an irrigation controller and a water application device at a location of a user [user's location];
utilizing the controller to at least partially control the water application device;
providing a first communication system comprising a public, packet switched network;
coupling the irrigation controller and a distal computer using [a] the first communication system;
coupling the irrigation controller and the user using a second communication system;
the user entering landscape irrigation operating information into the irrigation controller using the second communication system; and

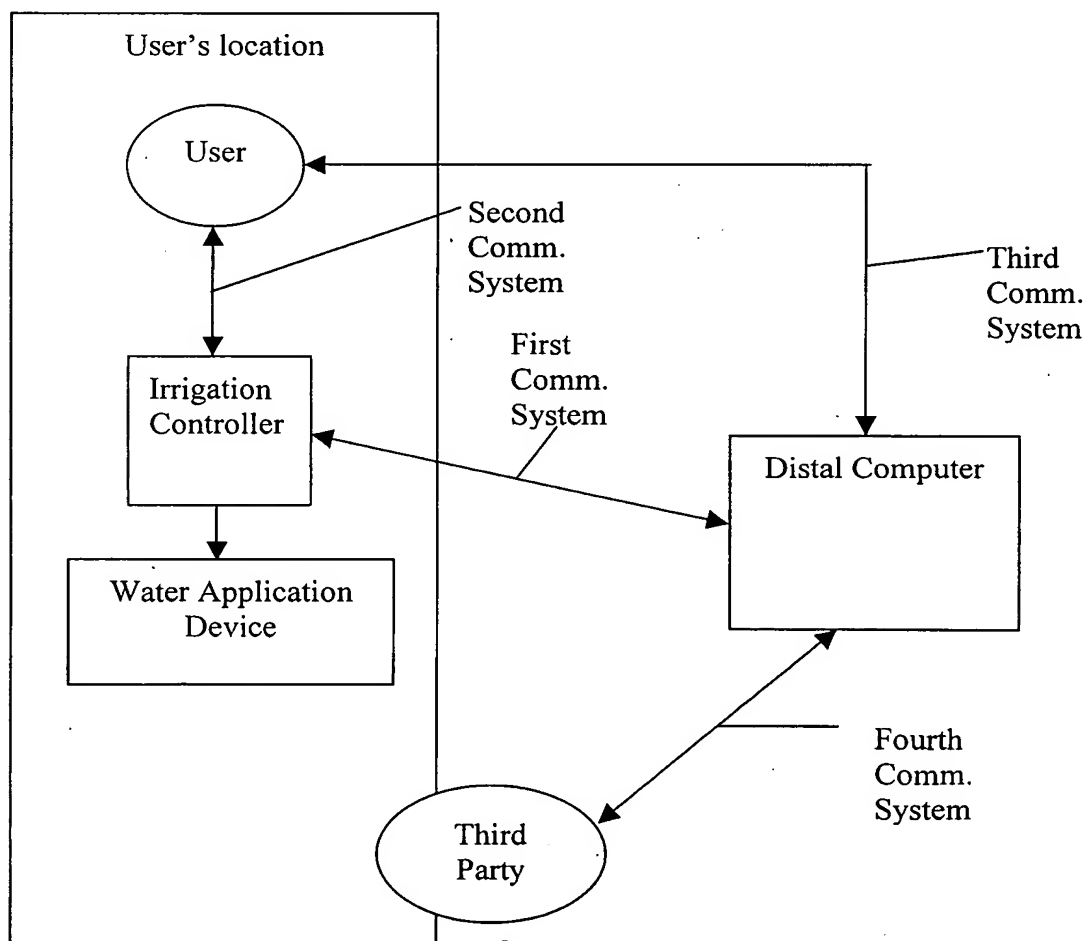
A3
case

the irrigation controller causing at least a portion of the landscape irrigation operating information to be transmitted to the distal computer using the first communication system.

Overview of the claims

Amended claim 1 recites a user, an irrigation controller, and a water application device all physically situated at the user's location. The irrigation controller, the user, a distal computer, and a third party exchange information over a plurality of communication systems, many of which comprise a public, packet switched network such as the Internet. Support for amending claim 1 to include a public, packet switched network is disclosed in the Summary of the Invention section of the specification, among other places. Amended claim 10 discloses an irrigation controller, a user, and a distal computer that are coupled to each other using a plurality of communication systems that include a public packet switched network such as the Internet. The irrigation controller causes at least a portion of the landscape operating information to be transmitted to the distal computer over the public, packet switched network.

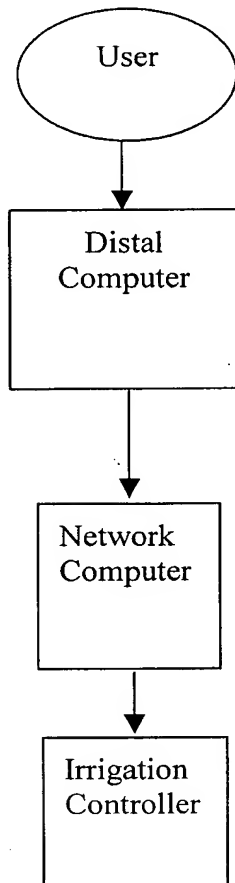
Diagram of amended claim 1



Townsend (U.S. Patent 6076740)**Overview of Townsend**

Townsend teaches an irrigation control system that utilizes a main computer to measure weather conditions in a first area, and to measure rainfall in a sub-area of the first area. Townsend is directed toward control of irrigation over a large area ("The area in which the irrigation is to be controlled is defined. In most cases this will be the greater metropolitan area and environs of a large city..." (Column 4, lines 3-5)). Townsend teaches that communication is linear and travels from an external user to a network computer to a main computer to an irrigation controller (Figure 1).

Diagram of Townsend



Claim 1

The Office considers claims 1-7 to be anticipated by Townsend. The applicant respectfully disagrees with that position, especially in view of the amendments contained herein.

“Anticipation under 35 USC § 102 requires the disclosure in a single piece of prior art of each and every limitation of a claimed invention...” *Rockwell International Corp. v. United States*, 147 F.3d 1358, 1363, 47 USPQ2d 1027, 1031 (Fed. Cir. 1998), (emphasis added).

Amended claim 1 (and claims 2-9 by virtue of their dependence on claim 1) recites the following limitations that Townsend fails to disclose:

- a user physically situated at the user’s location;

- a third party;
- a plurality of communication systems (“a first communication system”, “a second communication system”, “a third communication system”, and “a fourth communication system”);and
- “each of the first communication system, the third communication system, and the fourth communication system comprise a public packet switched network”

Distal is defined in the specification as “more than 1 km away” (page 5, line 3). “Third party” is defined as “a legal person other than the user” (page 5, line 4).

Townsend fails to disclose “a user physically situated at the user’s location”. As Townsend teaches a system directed toward control of irrigation over a large area (“The area in which the irrigation is to be controlled is defined. In most cases this will be the greater metropolitan area and environs of a large city...” (Column 4, lines 3-5)), it is not likely that the user (the one who controls the irrigation system) is physically situated at the same location as the controller.

Townsend also fails to disclose both a “third party” as defined by the specification, and four communication systems. Additionally, Townsend does not teach a communication system that comprises a public packet switched network. Since Townsend does not disclose all of the limitations of amended claim 1, it does not anticipate amended claim 1 (and claims 2-9 by virtue of their dependence on amended claim 1).

With regard to obviousness of claims that are dependent upon claim 1, the Office considers claims 8, 9 to be obvious over Townsend. The applicant respectfully disagrees with that position, especially in view of the amendments contained herein. Since claims 8 and 9 are dependent upon amended claim 1, if amended claim 1 is non-obvious, then claims 8 and 9 are also non-obvious. Thus, the following argument is directed at the non-obviousness of claim

1. Claim 1 recites:

“a first communication system that exchanges information between the irrigation controller and the distal computer;

a second communication system that exchanges information between the irrigation controller and the user;

a third communication system that exchanges information between the user and the distal computer;

a fourth communication system that exchanges information between the distal computer and a third party; and

wherein each of the first communication system, the third communication system, and the fourth communication system comprise a public packet switched network.”

First, Townsend does not teach or suggest a third party at all, and the reference lacks the motivation to include a third party since there is no apparent desirability of having a third party.

Second, there is no teaching or suggestion to exchange information using a first communication system, a second communication system, a third communication system, and a fourth communication system as amended claim 1 requires. Additionally, there is only one communication system taught by Townsend, however there are four communication systems in the claimed subject matter (see diagrams above). Thus, communication between the distal computer and the irrigation controller, for example, does not pass through any of the other components while communication between the irrigation controller and the distal computer in Townsend must pass through the main computer.

Claim 10

The Office considers claims 10-15, 19, and 20 to be anticipated by Townsend. The applicant respectfully disagrees with that position, especially in view of the amendments contained herein.

Similar to amended claim 1 above, amended claim 10 recites “physically situating...an irrigation controller ...at a location of a user”, and using a first, and second communication system wherein the first communication system comprises a public packet switched network.

Additionally, claim 10 provides “a first communication system comprising a public packet switched network”, and requires that the irrigation controller cause “at least a portion of the landscape information (entered by the user) to be transmitted to the distal computer”.

Townsend fails to disclose these limitations, and therefore does not anticipate claim 10 or any of the claims that are dependent upon claim 10.

Regarding non-obviousness of claim 10, Townsend lacks any teaching or suggestion to include more than one communication system, especially one that comprises a public packet switched network such as the Internet.

Miller (U.S. Patent 5479399) and Hirsch (U.S. Patent 4396149)

The Office considers claim 8, 9, 16, 17, 21-24 to be obvious over Miller and claim 18 to be obvious over Hirsch. Since all of these claims are dependent upon either claim 1 or claim 10, the need to argue these claims is obviated subject to the allowance of claims 1 and 10.

Respectfully submitted,



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CLAIMS

What is claimed is:

1. An irrigation system comprising:
each of an irrigation controller and a water application device physically situated at a location of a user, the controller at least partially controlling the water application device;
a distal computer remote from the user location;
a first communication system that exchanges information between the irrigation controller and the distal computer;
a second communication system that exchanges information between the irrigation controller and the user;
a third communication system that exchanges information between the user and the distal computer;
a fourth communication system that exchanges information between the distal computer and a third party; and
wherein each of the first communication system, the third communication system, and the fourth communication system comprise a public packet switched network.
2. The irrigation system of claim 1, wherein the exchange of information between each of the irrigation controller and the distal computer, the irrigation controller and the user, the user and the distal computer; and the distal computer and a third party, are bi-directional.
3. The irrigation system of claim 1, further comprising a microprocessor disposed in the irrigation controller, that facilitates the exchange of information between the irrigation controller and the distal computer.
4. The irrigation system of claim 1, further comprising a microprocessor disposed in a second unit separate from the irrigation controller, that facilitates the exchange of information between the irrigation controller and the distal computer.
5. The irrigation system of claim 1, further comprising a storage device that stores data at the user location.

6. The irrigation system of claim 1, wherein the second communication system comprises a public, packet switched network.
7. The irrigation system of claim 1 wherein the first communication system comprises a two-way pager.
8. The irrigation system of claim 1 wherein the first communication system comprises a web page interface.
9. The irrigation system of claim 1, wherein the second communication system comprises a dedicated link between the controller and a personal computer.
10. A method of operating an irrigation system comprising:
 - physically situating each of an irrigation controller and a water application device at a location of a user;
 - utilizing the controller to at least partially control the water application device;
 - providing a first communication system comprising a public packet switched network;
 - coupling the irrigation controller and a distal computer using the first communication system;
 - coupling the irrigation controller and the user using a second communication system;
 - the user entering landscape irrigation operating information into the irrigation controller using the second communication system; and
 - the irrigation controller causing at least a portion of the landscape irrigation operating information to be transmitted to the distal computer using the first communication system.
11. The method of claim 10 wherein the step of entering the landscape irrigation operating information comprises the user entering the landscape irrigation operating information into a personal computer, and the personal computer transmitting the information to the irrigation controller via the second communication system.
12. The method of claim 10, further comprising:

6. The irrigation system of claim 1, wherein the second communication system comprises a public, packet switched network.
7. The irrigation system of claim 1 wherein the first communication system comprises a two-way pager.
8. The irrigation system of claim 1 wherein the first communication system comprises a web page interface.
9. The irrigation system of claim 1, wherein the second communication system comprises a dedicated link between the controller and a personal computer.
10. A method of operating an irrigation system comprising:
 - physically situating each of an irrigation controller and a water application device at a location of a user;
 - utilizing the controller to at least partially control the water application device;
 - providing a first communication system comprising a public packet switched network;
 - coupling the irrigation controller and a distal computer using the first communication system;
 - coupling the irrigation controller and the user using a second communication system;
 - the user entering landscape irrigation operating information into the irrigation controller using the second communication system; and
 - the irrigation controller causing at least a portion of the landscape irrigation operating information to be transmitted to the distal computer using the first communication system.
11. The method of claim 10 wherein the step of entering the landscape irrigation operating information comprises the user entering the landscape irrigation operating information into a personal computer, and the personal computer transmitting the information to the irrigation controller via the second communication system.
12. The method of claim 10, further comprising:

providing the controller with a microprocessor programmed to receive additional information from the distal computer via the first communication system; and the microprocessor determining an irrigation schedule based at least in part on the landscape irrigation operating information from the user, and the additional information from the distal computer.

13. The method of claim 12, further comprising:
providing the controller with local water usage data; and
the microprocessor determining an irrigation schedule based at least in part on the water usage data.
14. The method of claim 13 wherein the step of determining an irrigation schedule further includes the microprocessor computing a desired quantity of water to be applied to a landscape at the user's location for a specific period of time.
15. The method of claim 14 wherein the period of time is at least one day.
16. The method of claim 13 wherein the additional information from the distal computer includes weather data, and further comprising the microprocessor computing an ETo value.
17. The method of claim 16 further comprising the microprocessor comparing the ETo value to the desired quantity of water applied to the landscape.
18. The method of claim 13, wherein the water usage data includes water pressure data.
19. The method of claim 13, further comprising coupling the user and the distal computer using a third communication system;
20. The method of claim 13, further comprising coupling the distal computer and a third party using a fourth communication system.
21. The method of claim 13 further comprising the microprocessor sending a warning to the user via the second communication system when an aspect of the irrigation system falls outside of a predetermined parameter.

22. The method of claim 13 further comprising the microprocessor preventing an operation of the irrigation system when the irrigation system falls outside of the predetermined parameters.
23. The method of claim 13 wherein the information transmitted to the distal computer comprises a calculated estimate of water actually applied at a station for a time period.
24. The method of claim 23 wherein the information transmitted to the distal computer further includes a relationship between the calculated estimate of water actually applied at a station for a time period, and a computed ETo for the station for the time period.